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This is the author's manuscript

Original Citation:

Availability:

This version is available <http://hdl.handle.net/2318/128774> since

Publisher:

John Benjamins

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Rethinking Grammaticalization

New Perspectives

Edited by

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In collaboration with

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Volume 76

Rethinking Grammaticalization. New perspectives

Edited by María José López-Couso and Elena Seoane

John Benjamins Publishing Company, 2008

Amsterdam / Philadelphia

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Mismatch

Grammar distortion and grammaticalization

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The paper investigates the potentially distorting impact of grammaticalization on grammar through the analysis of different types of synchronic form-meaning mismatches which may result from the expansion of a grammaticalization process. Grammaticalization may induce mismatches as a consequence of the development of abnormal structures or new constructions incompatible with the general patterns of the language. Mismatches may also be due to an unchanged residue of grammaticalization, which may derive either from inertial resistance or from a superordinate restriction which prevents the grammaticalization wave from extending to specific domains. Finally, mismatches may also be the result of language contact, either by making use of alternative devices of a foreign origin or by preventing the grammaticalization of native structures due to the introduction of ready-made borrowed constructions.

1. Introduction

In recent times, considerable attention has been devoted to the concept of mismatch, understood as a synchronic form-meaning discrepancy in which form-function mappings are "incongruent with respect to more general patterns of correspondence in the language" (cf. Francis and Michaelis 2003: 2). The emphasis on synchrony is aimed at exploring "the implications of mismatch phenomena in general for grammatical theory", in that "[m]ismatch phenomena challenge our conceptions of grammar and are thereby of vital importance for the development of grammatical architectures" (Francis and Michaelis 2003: 5). Two main types of mismatch have been distinguished: complexity and content mismatches. In a complexity mismatch, there is a discrepancy in the number of elements involved (and, consequently, in the complexity of the structure) at different levels of representation. This is exemplified, for example, by the place-holder *es* in German (cf. Eisenberg 1999: 175), as in (1).

(1) German

Es sind Studenten gekommen, die mit mir sprechen wollten.
 it are students come.PST.PTCP who with me.DAT speak want.PST
 'There came some students, who wanted to talk to me.'

In this example, the incongruence is the result of the parasitic role of *es*, which occupies the first syntactic position (known as “Vorfeld,” cf. Eisenberg 1999:389) but is not licensed by the verb. Observe how this place-holder (or “Vorfeld-*es*”) does not force morphosyntactic agreement with the verb, which agrees with the subject *Studenten*, in neat contrast, for instance, with the argumental *es* of metereological verbs, as in *es regnet* ‘it rains.’

A content mismatch, meanwhile, is characterized by incongruous mapping in the content of items from two different levels of representation. This type of mismatch is illustrated in the Sorbian example in (2) below (cf. Corbett 1987:303), in which the possessive pronoun semantically modifies a noun embedded as a derived adjective within a noun phrase.

- (2) Sorbian
*mojeŋo mužŋ-ova*ADJ
 my.GEN husband-POSS.ADJ.F.SG.NOM sister.F.SG.NOM
 ‘my husband’s sister’

The mismatches reviewed by Francis and Michaelis (2003) are discussed within a purely synchronic framework, in keeping with the general aim of understanding the architecture of synchronic grammars. As an important antecedent, the authors refer to the Stoic anomalist view of grammar, which attributed the presence of exceptions to the obscuring effects of language change. The broader diachronic viewpoint is intentionally left aside, although it is claimed to be “highly compatible” with the main theoretical approaches represented in their volume. However, such an approach runs the risk of undermining the whole enterprise, precisely because of the obscuring effect of language change. This can be seen in the first, and highly illustrative, example of mismatch quoted by Francis and Michaelis (2003), namely the verb form *kuti* ‘say’ in Chicheŵa, which also performs the function of clause-linkage marker. The emphasis on a synchronic account here overshadows an important characteristic of grammaticalization, that of the effect of layering, that is, the coexistence of older and newer forms or meanings (Hopper and Traugott 2003:49).

In this paper, then, the opposite approach is taken: to investigate synchronic mismatches from a diachronic perspective. In a sense, it is a truism that any change distorts a grammar, at least from the point of view of a fixed grammar (cf. Hopper and Traugott 2003:49 for a discussion). My intention is to investigate only those cases of distortion resulting directly from grammaticalization, that is, from evolutionary changes. Accordingly, I will disregard synchronic mismatches which can be ascribed to common processes of divergence and specialization as discussed by Hopper and Traugott (2003:115–126), and which often produce an effect of layering. Instead, I will focus on mismatches which are due solely to the process of grammaticalization as the latter expands and is generalized throughout the paradigmatic di-

mension of a grammar. In this way, the paper will investigate the distorting impact of grammaticalization on grammar.

The general assumption underlying this approach is that, by highlighting the disintegration and dispersal of forms, synchronic mismatches emphasize how “[g]rammaticalization tends to undermine the picture of stability, of clear categorical boundaries, and of structured groups of forms, showing these to be at the most temporary way-stations between different kinds of dispersal, emergence, and fragmentation” (Hopper and Traugott 2003:165).

The paper is structured as follows: in Section 2 the general impact of grammaticalization on grammar is discussed; Section 3 focuses on mismatches due to an unchanged residue of grammaticalization. The latter can result from (i) inertial resistance, which often has the effect of creating complexity mismatches; (ii) a well-defined superordinate restriction, which prevents the grammaticalization wave from extending to a certain domain; or (iii) language contact, which may create mismatches either by hindering the potential grammaticalization of endogenous constructions due to ready-made borrowed structures or by exploiting new grammatical options of foreign origin. Finally, Section 4 draws the conclusions of this study.

2. Mismatch and grammaticalization

Non-canonical patterns in a language can be a direct consequence of a grammaticalization process. On the one hand, they may be related to the emergence of structures considered abnormal from the point of view of the structural conditions of a given language system. These mismatches are therefore the direct result of grammaticalization which is in turn responsible for the abnormal structure. For instance, grammaticalization can lead to the formation of marked structures displaying introflecting morphology in a language such as Latin, in which introflection does not normally occur, as can be seen in (3).

- (3) Latin
- | | | | |
|------|-------------------------------|------------------------------|--------------------|
| | <i>quādam</i> ‘a certain one’ | <i>ips-e, -a, -um</i> ‘self’ | |
| | | Pre-classical | hybrid forms |
| Nom. | <i>quī-dam/quae-dam</i> | * <i>is-pse/ea-pse</i> | <i>ea-ps-a</i> |
| Gen. | <i>cuius-dam</i> | | <i>ips-i-us</i> |
| Acc. | <i>quen-dam/quan-dam</i> | <i>eum-pse/eam-pse</i> | <i>eam-ps-an</i> |
| Abl. | <i>quō-dam/quā-dam</i> | <i>eō-pse/eā-pse</i> | <i>ips-um, -am</i> |
| | | | <i>ips-ō, -ā</i> |

A sort of content mismatch may arise here caused by inflection occurring in the wrong place as a result of the grammaticalization of the markers *-dam* and

-*pse* with the relative and the demonstrative pronoun respectively. However, this should not be considered part of the expansion of the grammaticalization process, but rather symptomatic of its own (agglutinative) nature. It remains to be determined how far grammaticalization is responsible for the emergence of such abnormal structures in a language or, in other words, how far grammaticalization is blind with respect to the organization of a given grammatical system (cf. Haspelmath 1998a for a radical view).

On the other hand, the expansion of a grammaticalization process may induce mismatches indirectly because new constructions resulting from the generalization of the change arise which are incompatible with the general pattern of a language. For instance, Creissels (2006) mentions the case of the progressive periphrasis in Basque, caused by the grammaticalization of an intransitive construction containing an absolutive subject. When the construction was grammaticalized, it also extended to transitive verbs, giving rise to a split alignment in which it is a transitive verb that governs the absolutive subject, as illustrated in (4d).

(4) Basque

- a. *Jon paseatzen da.*
Jon.ABS walk.PFV be.PRS.SBJ.3SG
'Jon is walking' (non-periphrastic present)
- b. *Jon [[paseatzen] ari] da.*
Jon.ABS walk.PFV engaged be.PRS.SBJ.3SG
'Jon is walking' (lit. 'Jon is engaged in walking') (progressive periphrasis)
- c. *Jonek berriak ikusten ditu.*
Jon.ERG news.SG.ABS see.PFV AUX.PRS.SBJ.3SG.OBJ.3PL
'Jon is watching the news.' (non-periphrastic present)
- d. *Jon [[berriak ikusten] ari] da.*
Jon.ABS news.SG.ABS see.PFV engaged be.PRS.SBJ.3SG
'Jon is watching the news.' (progressive periphrasis)

In some Russian dialects the grammaticalization of the perfective periphrasis has also given rise to a sort of split alignment, since the possessive construction which is at the origin of the perfective periphrasis contains a non-nominative subject, as observed in (5) below.

(5) Russian

- a. *U Ivana novaja mašina.*
at Ivan.GEN new.SG.F.NOM car.SG.NOM
'Ivan has a new car.'

- b. *U volkov s'edeno korovu.*
at wolf.PL.GEN eaten.SG.N cow.SG.ACC
'The wolves have eaten the cow.'

The Latin, Basque and Russian cases just discussed show how the expansion of a grammaticalization process may bring about new non-canonical patterns within a grammar. Synchronic mismatches may then be eliminated by additional changes, which are not directly related to the logic of grammaticalization but correspond to readjustment strategies which are active in a grammar to increase form-meaning consistency.¹ In fact, in the case of **is-pse*, the abnormal feature was eliminated by the externalization of inflection, as in the Classical Latin forms *ips-e*, *ips-a*, *ips-um*, etc. (cf. Haspelmath 1993). Similarly, Creissels (2006) reports for Basque that the effects of the grammaticalization of an aspectual periphrasis can be cancelled by a readjustment under the weight of analogy. Thus, in the habitual construction of the Bizkaian dialect of Basque with the verb *jakin* 'know' in auxiliary function, the subject has the coding properties expected of the auxiliated verb, and not those expected of the auxiliary, as we saw in (4d).

3. Mismatch and the unchanged residue of grammaticalization

A second source for mismatches can be traced back to an unchanged residue of grammaticalization which is due to the underexploitation of a domain potentially exposed to a process of grammaticalization. The focus on the expansion or generalization of grammaticalization emphasizes the relevance of the scenario onto which a change is projected. There are many factors involved here, and a distinction should be made between actualization and extension of an evolutive change (cf. Andersen 2001). Furthermore, the different roles played by reanalysis in creating new grammatical structures and by analogy in their generalization (cf. Hopper and Traugott 2003: 63–69) may prove very useful. A plausible explanatory model for such a complex scenario is Himmelmann's (2004: 33) formula and exemplification, which conceives of grammaticalization in terms of context expansion:

$$(X_n) A_n B \mid K_n \rightarrow (X_{n+x}) A_{n+x} b \mid K_{n+x}$$

where *A* and *B* represent full lexical items, *b* is a grammaticalized element and the following three types of contextual changes (*K*) occur:

1. How grammaticalization interferes with the naturalness (or markedness) of a given linguistic system is discussed more extensively in Gaeta (forthcoming).

- a. Host class formation: $A_n \rightarrow A_{n+x}$ e.g. common nouns \rightarrow common and proper nouns.
- b. Change of syntactic context: $X_n \rightarrow X_{n+x}$ e.g. core argument position \rightarrow core and peripheral argument position.
- c. Change of semantic-pragmatic context: $K_n \rightarrow K_{n+x}$ e.g. anaphoric use \rightarrow anaphoric and associative anaphoric use.

The speed at which the innovation is extended may vary considerably depending on a number of different factors.² I imagine two possible scenarios for such mismatches to occur, which correspond to two possible outcomes of the generalization of a grammaticalization process, as in Figure 1. Figure 1 illustrates the scenarios in which a new marker (the black circle) emerges and expands to cover a given morphological domain. It leaves behind unchanged residues which can be either minimal, as in Figure 1a, or systematic, as in Figure 1b, where a well-defined area of the expansion domain is left uncovered by the new marker. As laid down by Himmelmann's formula, the target domain consists in the systematic exploitation of larger and larger contexts of the application of a rule. I leave open the question of whether such a target domain should be understood in paradigmatic terms of a Jakobsonian style or as a prototype network based on family resemblance.

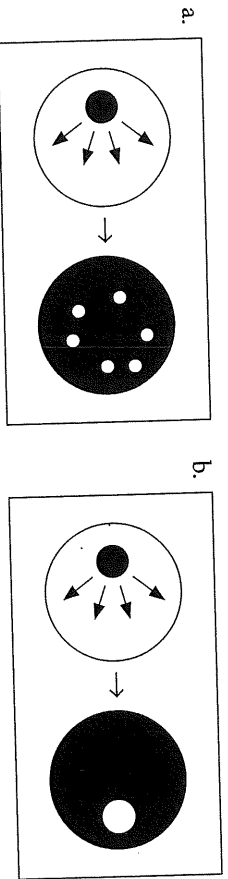


Figure 1. Possible outcomes of the generalization of a grammaticalization process

These different scenarios relate to forces which hinder or delay the expansion, that is, to the sources of distortion, which can be categorized into three main types. The first is lexical inertia, which plays a major role in interfering with rule generalization, especially for form renewal. The effect of this interference can also

2. The sociolinguistic (and the extra-grammatical factors in general) accompanying a change will not be discussed in this paper. I am aware of the fact, pointed out by Andersen (2001: 243), that '[a]s a consequence of shifts in social valuation, many linguistic changes do not run their full course; some barely get off the ground before they peter out, some get under way in one style of speaking and are 'reversed' when another style of speaking becomes preferred in the community, and some changes lose their momentum along the way and leave unchanged residue of one kind or another.' This section really only discusses the typology of such unchanged residues.

be observed in cases where an innovating grammaticalization has to face a certain inertia which hinders the full exploitation of a target domain. This can lead to truly defective paradigms (cf. Section 3.1 below). Lexical defectiveness of this kind can be distinguished from a second type of distortion in which defectiveness comes about as a result of grammatical factors exerting a hindering effect on the possible expansion of grammaticalization. In this more complex case, a grammaticalization process cannot be extended further to cover a certain domain owing to a superordinate motivation (discussed in Section 3.2). Finally, external forces can play a role in limiting the development of a grammaticalization process, particularly in situations of close language contact (cf. Section 3.3).

Let us turn now, therefore, and take a more detailed look at this increased complex typography.

3.1 Mismatch and inertia

Grammaticalization normally leads to the paradigmaticization of a given construction which spreads through the grammar saturating a particular target domain. The latter may already be covered by an older construction, in which case we commonly speak of form renewal or renovating grammaticalization. A classical example of this is the strong/weak verb inflection in the Germanic languages, as exemplified below by Gothic (cf. Braune 1981:131; Lehmann 1989:178).

- (6) Gothic
- a. **nasjan dedum* 'we did save' > *nasidedum* 'we saved'³
- b. *hafjan* 'we raise' *hofum* 'we raised'

In most cases, renovating grammaticalization leaves behind unchanged residues because of 'lexical inertia', which is the counterpart of the speed at which an innovation becomes extended through the lexicon.⁴ The effect of this is paradigm layering: that is, inflectional classes. *Haffan* in (6b) displays a strong inflection with stem vowel alternation; this is an example of complexity mismatch. Observe Figure 2.

3. The interpretation of the dental suffix of weak preterites as dating back to the grammaticalization of an Indo-European verbal form **dn̥ō-/dn̥ē-* (cf. Greek *ti-tē-mi*, Sanskrit *ida-dhā-mi*, Latin *jeet*) is not undisputed (cf. Ramat 1986:208 for a quick survey). A second, less popular, interpretation treats the dental suffix as the result of an extension of the Indo-European suffix of the participle of intransitive verbs -*tó-* > Germanic -*ðā-* and the secondary addition of verbal desideratives. In this study, the former analysis is assumed and exemplified by the rather artificial form in (6a), which is taken from Lehmann (1989).

4. It would be interesting to investigate whether a quantitative measure of inertia is even possible, let alone meaningful. However, this must be left for a future study.

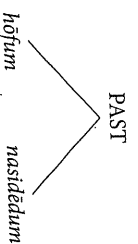


Figure 2. Complexity mismatch

Older and newer inflectional classes can survive side by side for centuries. Usually, the lexical domain covered by the older forms is slowly but systematically eroded by the newer forms following lexical diffusion paths related mainly to frequency (cf. Hopper and Traugott 2003: 126–130 for a discussion) but also obeying internal system adequacy, as illustrated by Wurzel (2000) for German verb classes. Consider (7) below.

- (7) a. German
- | | |
|--|---|
| <i>gären</i> – <i>gor</i> – <i>gegoren</i> | > <i>gären</i> – <i>gärte</i> – <i>gegärt</i> ‘ferment’ |
| <i>glimmen</i> – <i>glomm</i> – <i>geglommen</i> | > <i>glimmen</i> – <i>glimmte</i> – <i>geglimmt</i> |
| | ‘glimmer’ |
| <i>melken</i> – <i>molk</i> – <i>gemolken</i> | > <i>melken</i> – <i>melkte</i> – <i>gemelkt</i> ‘milk’ |
| <i>weben</i> – <i>wob</i> – <i>gewoben</i> | > <i>weben</i> – <i>webte</i> – <i>gewebt</i> ‘weave’ |
- b. Old High German Middle High German New High German
- | | | |
|---------------------------------|-----------------------------------|-------------------------------------|
| <i>skeran</i> – <i>skar</i> | > <i>schar</i> / <i>schor</i> | > <i>scherte</i> ‘care’ |
| <i>sweran</i> – <i>swar</i> | > <i>swar</i> / <i>schwor</i> | > <i>schärte</i> ‘ulcerate’ |
| <i>draskan</i> – <i>drask</i> | > <i>drasch</i> / <i>drosch</i> | > <i>drosch</i> ‘thresh’ |
| <i>irleskan</i> – <i>irtask</i> | > <i>erlasch</i> / <i>erlosch</i> | > <i>erlosch</i> (lösch) ‘burn out’ |
- c. Old High German New High German
- | | |
|---|--|
| <i>ladon</i> – <i>ladota</i> – <i>giladot</i> | > <i>laden</i> – <i>lud</i> – <i>geladen</i> ‘invite’ |
| <i>swügen</i> – <i>swigēta</i> – <i>giswiget</i> | > <i>schweigen</i> – <i>schwieg</i> – <i>geschwiegen</i> |
| | ‘be silent’ |
| <i>skinten</i> – <i>skindita</i> – <i>giskindit</i> | > <i>schinden</i> – <i>schund</i> – <i>geschunden</i> ‘skin’ |
| <i>frāgen</i> – <i>frāgēta</i> – <i>gifrāgēt</i> | > <i>fragen</i> – <i>fragte</i> – <i>gefragt</i> ‘ask’ |
| | now obsolete: <i>frug</i> – <i>gefragen</i> |

The examples in (7a) show some inflectional class changes from the strong to the weak conjugation which are relatively new. In turn, (7b) illustrates some changes which involve an Old High German verb which is first transferred to another inflectional class of strong verbs in Middle High German (e.g. *skar* ‘cared’ > *schor*), before becoming a weak verb in New High German. Moreover, the process of lexical diffusion may not always be unidirectional, but may exhibit deviations like

those reported in (7c). In this instance, an Old High German weak verb joins the strong class or passes through a strong stage before returning to the weak conjugation, as attested by the New High German form *fragen* ‘ask’.⁵

At an extreme point, form renewal leaves behind lexical islands not reached by the grammaticalization wave, such as the suppletive and defective paradigms. As in our earlier example of strong/weak verbs in Germanic, Afrikaans has been radically denuded of strong verbs (cf. König and van der Auwera 1994: 490).

- (8) Afrikaans
- | |
|--|
| <i>breek</i> ‘to break’: <i>ek het gebreek</i> ‘I have broken’ |
| <i>gebroke</i> : ‘in <i>gebroke hart</i> ‘a broken heart’ |
| <i>gebreek</i> : ‘in <i>gebreekte kopie</i> ‘a broken cup’ |

Some strong forms still survive as deverbal adjectives but are no longer used in a verbal context. In many instances the newly formed weak past participle coexists with the older strong form, but with a distinction in meaning, the strong form usually denoting the more figurative meaning, as shown in (8b).

Older forms need not disappear, but as a side effect of form renewal may change their status within a paradigm. Consider, for example, the case of Tsakonian Greek, in which old present forms develop a future meaning under the force of new grammaticalized present forms acting as a push chain (cf. Haspelmath 1998b).

- (9) Tsakonian Greek
- | | |
|-------------------|-----------------------------|
| <i>Indicative</i> | <i>Subjunctive</i> |
| <i>ēni ften-u</i> | (<i>na</i>) <i>ften-u</i> |
| I am arriv-ing.M | (that) arriv-1SG |
| ‘I arrive’ | ‘(that) I arrive’ |

The new present tense is a participial periphrasis of the type ‘be + present participle.’ The old present (and modern subjunctive) dates back to the present of late-antiquity Greek, where the Classical Greek indicative and subjunctive forms were merged into a single form:

5. One anonymous reviewer interestingly asks what consequences such a behaviour may have for the unidirectionality hypothesis commonly assumed by grammaticalizationists. Although the issue of unidirectionality may, to a certain extent, be considered an open question (cf. Gaeta 2004 for a discussion), I would not treat the German verbs mentioned in (7c) as an argument against unidirectionality, because the change of inflectional class does not have the effect of upgrading the grammatical status of the suffix and turning it into a more autonomous unit. Such changes should be regarded as readjustments within the inflectional morphology of German (which, nevertheless, does not solve the question of why such deviations from the general trend occurred in the first place).

- (10) a. Tsakonian Greek b. Classical Greek
- | | |
|--------------------|-----------------------------------|
| <i>na ften-u</i> | (<i>hina</i>) <i>phthain-ō</i> |
| that arrive-1SG | (that) arrive-1SG |
| <i>na ften-ere</i> | (<i>hina</i>) <i>phthain-is</i> |
| that arrive-2SG | (that) arrive-2SG |
| <i>na ften-i</i> | (<i>hina</i>) <i>phthain-i</i> |
| that arrive-3SG | (that) arrive-3SG |

The result is a markedness mismatch, since, contrary to the general expectation, present forms are morphologically more marked than future forms. In this case, '[t]here is no lexical item that is turned into a grammatical item, but a present-tense form which already has a strongly grammaticalized status changes its meaning as a side effect of another grammaticalization process' (Haspelmath 1998b: 34).

In the case of verbal inflection in Germanic, the context expansion which lies behind any grammaticalization process cannot be traced back to its origin: we can only record the inertia which is the counterpart of the expansion. An example which closely reflects Himmelmann's concept of context expansion is provided by the Germanic collective prefix *ga-*, which was grammaticalized as an aspectual marker for past participles in Old High German (witness (11a)). In Old High German times, however, the marker is not attested with telic verbs, such as those in (11b).

- (11) Old High German
- ginoman* 'taken', *gisalbōt* 'greased'
 - gueman/quoman* 'come', *funtan* 'found', *wortan* 'become', *brāht* / *brungan* 'brought', *troffan* 'met'

We can presume that the telic character of those predicates were responsible for delaying the process of expansion of the prefix within the Old High German verbal basin. In other words, the context expansion first entailed non-telic, and only later telic verbs. In some modern dialects of German this expansion never took place. Consider the examples in (12).

- (12) a. Ripurian
- | | |
|------------------|------------|
| <i>vo-ŋ-a</i> | 'found' |
| <i>ku-m-a</i> | 'come' |
| <i>wi:ada(n)</i> | 'become' |
| <i>brēt</i> | 'brought' |
| <i>krēja</i> | 'taken' |
| <i>ble-va</i> | 'remained' |
| <i>vrē-s-a</i> | 'devoured' |
| <i>trō-f-a</i> | 'met' |

- b. Lotharingian
- | | |
|--------------|--------------|
| <i>gān</i> | 'gone' |
| <i>gin</i> | 'given' |
| <i>košt</i> | 'costed' |
| <i>brāt</i> | 'brought' |
| <i>gol</i> | 'been worth' |
| <i>plūw</i> | 'remained' |
| <i>kreit</i> | 'taken' |
| <i>koif</i> | 'bought' |
- c. Upper Vinschgau
- | | | | | | |
|---------------|--------------|------------------|----------|-----------------|------------|
| <i>pikxt</i> | 'stuck' | <i>kfrɔk</i> | 'asked' | <i>gmuunt</i> | 'meant' |
| <i>tre:tn</i> | 'trodden' | <i>kfuntn</i> | 'found' | <i>gnuman</i> | 'taken' |
| <i>kaokht</i> | 'juggled' | <i>ksuuxt</i> | 'sought' | <i>glɔxt</i> | 'laughed' |
| <i>kxent</i> | 'known' | <i>kxep</i> | 'held' | <i>graontst</i> | 'grumbled' |
| <i>denkxt</i> | 'thought' | <i>kxcp/kxet</i> | 'had' | <i>gio:gn</i> | 'hunted' |
| <i>goln</i> | 'been worth' | <i>gvist</i> | 'known' | <i>gesn</i> | 'eaten' |

As we can see from Ripurian (cf. Schirmunski 1962: 517), the prefix *ge-* never reached the participles of telic verbs. In Lotharingian, the context expansion documented in Old High German came to be limited by lexical inertia (cf. Schirmunski 1962: 517), and the non-occurrence of the prefix *ge-* is nowadays restricted to the arbitrary set of verbs listed in (12b). Synchronically, the picture resembles Figure 1a above: a number of lexical lacunas appear now surrounded by the systematic extension of the marker *ge-* and are now completely opaque, that is, only morphologically motivated. For the Bavarian dialect of Upper Vinschgau (cf. Alber and Lanthaler 2005), the distribution of the prefix has been reanalysed in a completely different way, acquiring a strictly morphophonological motivation: it does not occur with initial plosives (e.g. *denkxt* 'thought' vs. *gmuunt* 'meant'). Even though it results from a reanalysis of a different nature, the unchanged residue is homogenous and resembles the scenario presented in Figure 1b.

3.2 Mismatch as a side effect of grammaticalization

The under-exploitation of a domain potentially exposed to grammaticalization is not necessarily due to lexical inertia, even if it results from a normal context expansion, as happens in the case of the prefix *ge-*. Perhaps more interestingly, high-ordered constraints can also exert a hindering force, especially for an innovating grammaticalization, whose potential domain is usually free from pre-existing constructions. This leaves only a limited possibility for mismatches due to lexical inertia to emerge. We will now discuss at greater length a particular case in which the

expansion of the grammaticalization of a perfective construction meets with some grammatically superordinate restraining forces, whereby a synchronic mismatch is produced as a side effect. In German, an unexpected infinitive is found in the *Perfekt* construction when modals or some other verbs governing a bare infinitive occur. See (13) below.

- (13) German
- a. *Elena hat Deutsch lernen wollen.*
Elena has German learn.INF will.INF
'Elena had to learn German.'
 - b. **Elena hat Deutsch lernen gewollt.*
Elena has German learn.INF will.PST.PTCP
'Elena had to learn German.'
 - c. *Elena hat den Wagen kommen sehen.*
Elena has the car come.INF see.INF
'Elena saw the car coming.'
 - d. *Elena hat den Wagen kommen gesehen.*
Elena has the car come.INF see.PST.PTCP
'Elena saw the car coming.'

Notice that, while both the past participle and the infinitive are available for verbs such as *sehen* 'see' (cf. (13c–d)), the occurrence of a past participle with a modal is unacceptable (cf. (13b)), although a past participle form is attested in constructions such as *Elena hat es gewollt* 'Elena wanted it.' What we are clearly observing here, therefore, is a content mismatch, coupled with a mismatch relating to the serialization order of the verbal complex in embedded clauses.⁶ Consider (14a–c).

- (14) German
- a. *Es ist schön, dass Elena Deutsch hat lernen wollen.*
it is beautiful that Elena German has learn.INF will.INF
'It is beautiful that Elena wanted to learn German.'

6. Notice, again, that for the other verbs the normal choice is available:

- (i) *Es ist wahr, dass Elena den Wagen hat kommen sehen.*
it is true that Elena the car has come.INF see.INF
'It is true that Elena saw the car coming.'
- (ii) *Es ist wahr, dass Elena den Wagen kommen gesehen hat.*
it is true that Elena the car come.INF see.PST.PTCP has
'It is true that Elena saw the car coming.'
- (iii) **Es ist wahr, dass Elena den Wagen kommen sehen hat.*
it is true that Elena the car come.INF see.INF has

As (iii) shows, however, the normal serialization order is not compatible with the substitute infinitive.

- b. **Es ist schön, dass Elena Deutsch lernen gewollt hat.*
it is beautiful that Elena German learn.INF will.PST.PTCP has
- c. **Es ist schön, dass Elena Deutsch lernen wollen hat.*
it is beautiful that Elena German learn.INF will.INF has

The same mismatch occurs in many West Germanic languages, such as Dutch, for instance, in spite of the different serialization of the verbal complex (cf. Schmid 2005 for a survey).⁷

- (15) Dutch
- [...] *dat ik dat altijd heb willen doen*
that I that always have want.INF do.INF
'that I always wanted to do this'

An interesting point to note is that a serialization of the Dutch type was dominant in older stages of German, from which the modern situation slowly developed (cf. (16b) below and Härd 1981). Owing to space constraints, however, I will not consider the question of serialization here, as it must anyway be kept apart from the explanation of why such a morphosyntactic mismatch occurred. In fact, even though the other West Germanic languages vary in terms of the serialization order chosen, the substitute infinitive displays common features in all of them (cf. Gaeta 2005a, 2006 for details).

The substitute infinitive is first attested in Middle High German (about the thirteenth century) in examples like those offered in (16).

- (16) Middle High German
- a. *hâst du daz schif lâzen gân.*
have.2SG you the boat leave.INF go.INF
'You left the boat go away.' (Trist. 6796–6797)
 - b. *daz er die brieffe nît habe heissen machin.*
that he the letters not have order.INF make.INF
'that he did not order to prepare the letters' (Publ. 615, 31)

Common to all substitute infinitives is the property of governing a following infinitive. In other words, their second argument is served by another verb. More importantly, this property interacts with a perfect construction which is in the process of being grammaticalized at exactly the same time. To understand why such a mismatch occurs, it is necessary to sketch how the verbal periphrasis is grammaticalized. The verbal semantics of the process is represented using Klein's (2000)

7. One exception is English, where modals, as is well known, underwent major changes (cf. among others, Plank 1984 for a discussion).

recent approach (cf. also Eisenberg et al. 2001), in which *Aktionsart* is represented in relation to the number of arguments selected by the predicate.⁸ This exposes the relation between the possible different temporal intervals present in the verbal description of an event and the participants involved in it. For example, the German verb *schlafen* 'sleep' displays only one argument-time window, in which argument A is associated with a single temporal interval, t_{source} (cf. (17a)). By contrast, in the case of the two-place predicate *öffnen* 'open', the second argument, B, is associated with two argument-time windows. The second window represents the change of state resulting from the intervention of A, providing a second temporal interval, t_{target} , in which B is attributed a different property with respect to the same B in t_s (cf. (17b)).

- (17) German
 a. *schlafen* 'sleep' $\langle A, t_s \rangle$
 b. *öffnen* 'open' $\langle A, t_s \rangle, \langle B, t_s \rangle, \langle B, t_t \rangle$

In order to be semantically licensed, a past participle must be anchored at an argument-time window where a second temporal interval for a given participant is specified, as illustrated in (18) below.

- (18) German
 a. **der geschlafene Riese* b. *die geöffnete Tür*
 lit. 'the slept giant' 'the opened door'

Ungrammaticality is also observed when the past participle governing an infinitive is used in the attributive function, as in (19).

- (19) German
 a. **der im Park schlafen gesehene Mann*
 the in.DEF park sleep.INF see.PST.PTCP man
 b. **der hier kommen gehörte Mann*
 the here come.INF hear.PST.PTCP man

When the second argument-time window is not saturated by a governed infinitive, that is, when it can release its referential potential, the attributive participle is possible. Consider examples (20a–b).

8. In Klein's words (2000: 366), "[w]hat constitutes the lexical content of a verb stem? It is often said that verbs somehow refer to events, whereas nouns refer to objects. This notion, familiar from the days of the Stoic grammarians, is at best sloppy and in fact is highly misleading. The lexical content of a verb CONTRIBUTES to the description of a situation. It contributes the specification of (qualitative or spatial) properties which some entities have during some verbal intervals."

- (20) German
 a. *der im Park gesehene Mann*.
 the in.DEF park see.PST.PTCP man
 'the man seen in the park'
 b. *die von allen gehörte Musik*.
 the by everybody hear.PST.PTCP music
 'the music heard by everybody'

With a verb like *schlafen*, the past participle is only possible in the *Perfekt* construction, in which the second temporal interval is provided by the auxiliary *haben* 'have'.⁹

- (21) German
Der Riese hat geschlafen \Leftarrow *haben*_{AUX} = $\langle A, t_t \rangle$
 'The giant has slept.'

By contrast, the semantic restriction cannot be overcome when a verb governs another infinitive, because the second argument-time window, which is needed as a semantic anchor for the past participle, is already saturated by the governed infinitive (cf. (22) below). This explains the unacceptability of (19) above.¹⁰

- (22) *sehen* $\langle A, t_s \rangle, \langle B, t_s \rangle, \langle B, t_t \rangle$
schlafen $\langle B, t_s \rangle$

9. Notice that the second temporal interval provided by *haben* gives rise to a true perfective construction. By contrast, when the auxiliary *sein* 'be' is selected, a resultative state similar to the copula construction is observed: *Der Riese ist eingeschlafen/tot* 'The giant has fallen asleep/is dead' (cf. Leiss 1992: 273).

10. The restriction is strictly related to the specific semantics and to the diachronic development of the (West) Germanic participle. How far similar effects can be observed in other languages in which a similar grammaticalization process occurs (e.g. Romance languages) is a complex question which requires a separate contrastive investigation. In any case, that the semantics of the participle respects different properties is shown, for instance, by the differences in auxiliary selection between German and Italian verbs:

- | | | | | | |
|-----|------------------------------|------|-------------------------------|-------|------------------------------------|
| (i) | German | (ii) | German | (iii) | Italian |
| | <i>Die Blume hat geblüht</i> | | <i>Die Blume ist verblüht</i> | | <i>Il fiore è fiorito/sfiorito</i> |
| | 'the flower has flourished' | | 'the flower is withered' | | 'the flower is flourished/ |
| | | | | | withered' |

The different grammaticalization processes display further differences (cf. Grønvik 1986), which are mirrored by different synchronic properties of, for instance, Italian participles, which can enter into an attributive construction and govern another infinitive: *L'uomo visto dormire nel parco* 'the man seen sleeping in the park.' I thank one anonymous reviewer for drawing my attention to this point.

An important consequence of the representation in (22) is that the governed infinitive must now share the same temporal interval as the first argument-time window, which also means that no second temporal interval is available for licensing a past participle. In other words, the events described by both verbs must be simultaneous.

- (23) German
- a. *Hans sah Karl schlafen.*
Hans saw Karl sleep.INF
'Hans saw Karl sleeping.'
- b. **Hans sah Karl geschlafen haben.*
Hans saw Karl sleep.PST.PTCP have

Let us now look back at Old High German, when the *Perfekt* construction was in an early stage of development (cf. Braune 1987:253). Consider example (24).

- (24) Old High German
iz habet uberstigana in uns jugend managa.
 it has overcome.F in us youth.F big.F
 'It has overcome the big youth in us.' (O 1,4,53)

In this example, the Old High German past participle was not yet fully grammaticalized as an element of the modern periphrastic structure. For instance, it still displayed agreement with the object (*yugend managa*). To account for the biclausal nature of the sentence, we refer to the compositional syntactic and semantic structures offered in (25) (cf. Harris 2003:542).

- $$(25) \quad [\text{SB}_j \text{OB}_i \text{haben} \mid \text{SB}_{j/k} \text{OB}_l \text{V} \dots];$$
-
- $$\langle \dot{\text{A}}, t_s \rangle, \langle \text{B}, t_s \rangle$$
-
- $$-$$
-
- $$\langle \text{X}, t_s \rangle, \langle \text{B}, t_s \rangle, \langle \text{B}, t_l \rangle$$

A verb such as *schlafen* could not occur in such a combination (cf. Leiss 1992:280). The process leading to the grammaticalization of the periphrasis first entailed an abductive inference based on Langacker's (1991) subjectification,¹¹ which reduced the possibilities of interpreting the first argument of the participle involved as different from the first argument of the main verb (cf. (26a)). Subjectification also implied that a second temporal interval $\langle A, t_1 \rangle$ had to be attributed implicitly to the first argument of the main verb. Secondly, a process of clause fusion took place,

11. Langacker (1991: 215) defines subjectification as “a semantic shift or extension in which an entity originally construed objectively comes to receive a more subjective construal.” For a more extensive discussion of the role played by subjectification in grammaticalization, see Mortelmans (2004) and Gaeta (2005b).

whereby the two original predicates were fused intrinsically (cf. (26b)). The final semantics is contained in (26c), in which the function of the auxiliary *haben* is to provide the required second temporal interval.

- (26) a. Subjectification: $X \equiv A$
b. Clause fusion: $[SB_j, OB_i, haben [SB_j, OB_i] V \dots]] > [SB_j, OB_i, haben V \dots]$
c. $\langle A, t_s \rangle, \langle A, t_v \rangle, \langle B, t_s \rangle, \langle B, t_v \rangle$

When the *Perfekt* was grammaticalized in Middle High German, the potential domain of expansion provided by verbs governing an infinitive could only be exploited on condition that the restriction against employing the past participle illustrated in (22) was preserved, as the following compositional structure summarizes:

- (27) *hat + sehen* $\langle A, t_s \rangle, \langle A, t_t \rangle, \langle B, t_s \rangle, \langle B, t_t \rangle$
schlafen $\langle B, t_s \rangle$ —

Given the impossibility of using the past participle due to the lack of a second argument-time window $\langle B, t_v \rangle$, the arguably default form, that is, the infinitive, emerged as a viable solution, giving rise to the content mismatch which occurs in sentences like those reported in (16) above. It should be stressed that the German infinitive qualified at this time as a default form employed to express pure lexical meaning. This can be seen in the expansion of its periphrastic uses, listed and exemplified below:

- a. Modal + infinitive periphrasis (especially *mögen*, *müssen* and *wollen*) to express a wish or order, even as early as Old High German (cf. Gaeta 2002).

- (28) Early New High German
got müeze des gastes pflegen.
 god must.3^{SG} the.GEN guest.GEN care.INF
 'God protect the guest!' (Iwein 6719)

- b. *Tun* periphrasis (Paul 1989:313).

- (29) Early New High German
die lieb sich meren tuot
the love itself enlarge does
'the love does enlarge itself'

- c. *Würde* + infinitive periphrasis for the past subjunctive, since the fourteenth century (cf. Ebert et al. 1993: 392).

- (30) Early New High German
das mit dem Turken vnd Frantzosen dis jar so stehen wurde
 that with the Turk and Frenchman this year so stand would
 'that this year it would be like this as for the Turk and the Frenchman'

d. *Werden* + infinitive periphrasis for the future, since the late fourteenth century (cf. Paul 1989:298).

- (31) Early New High German
daz wirt er eine klagen
 that will he one lament.INF
 'that he will lament one'

The future periphrasis is particularly significant for our purposes, because it developed in parallel with the substitute infinitive from the late fourteenth century. The infinitive replaced the previous present participle, giving rise to the modern periphrasis. It is also interesting to note that this periphrasis shows similarities with the substitute infinitive in (14a) above in regard to the serialization conditions. Consider (32) below.

- (32) German
Teresa ist davon überzeugt, dass Elena Deutsch wird lernen
 Teresa is thereof convinced that Elena German becomes learn.INF
müssen.
 must.INF
 'Teresa is convinced that Elena will have to learn German.'

Finally, it should be added that the substitute infinitive was not the only solution adopted in the course of the linguistic history of German to overcome the problem under analysis. Other escape strategies are attested, one of which is the expected *haben* + past participle + infinitive construction (cf. Ebert et al. 1993:414), illustrated in (33).

- (33) Early New High German
 [...] *daz sie die engel gehort het singen ein gesank*
 that she the angels hear.PST.PTCP have.SBJV sing.INF a song
 'that she could hear the angels singing a song'

We may wonder why, in the course of time, paradigmatic forces did not act to eliminate this mismatch. Regularization tendencies are attested, as shown by the normalized form in (33) and also by the expansion of the regular construction in German, in which the substitute infinitive survives only in modals and a few other verbs, in contrast with other West Germanic languages such as Dutch, which still

mirrors the original diffusion. On this question, we can only speculate that, for German at least, a certain regularization driven by normative impulses did indeed take place. As much can be inferred from the following passage of Hermann Paul's *Grammatik* (1920:128–129):

Ausnahmsweise Verwendung des Part. der genannten Verba in der neueren Sprache ist wohl immer nicht durch landschaftlichen Sprachgebrauch, sondern durch logische Erwägungen der Schriftsteller veranlaßt [...]. Besonders hat Rückert die Sprache zu korrigieren versucht [...]. Auch Adelung hält bei *hören* das Part. für die regelmäßige, edlere Form.¹²

3.3 Mismatch and language contact

The last type of grammaticalization inducing the rise of synchronic mismatches concerns system-external motivation, namely language contact. In the two cases briefly discussed below (cf. Bisang 2001), a more productive and functionally more consistent morphological system fails to develop in Khmer because of contact with Thai and Vietnamese, on the one hand, while several morphological principles develop in Vietnamese as a result of contact with Chinese. Again, the focus here will not be on extra-grammatical factors, but on the impact of language contact on the development or under-development of a grammaticalization process.

A predominantly prefixing and infixing language like Khmer productively employs, among others, the prefixes featured in (34), which cover a broad range of functions.

- (34) Khmer
- | Prefix | Verbal root | Derived verb/noun |
|-------------|--------------------------------------|-----------------------------|
| <i>p-</i> | <i>dae</i> 'break' (intr.) | <i>phdae</i> 'break' (tr.) |
| <i>k-</i> | <i>bay</i> 'use sth. to shade/cover' | <i>kban</i> 'visor, guard' |
| <i>crə-</i> | <i>muc</i> 'sink' (intr.) | <i>cramuc</i> 'sink' (tr.) |
| <i>bvN-</i> | <i>rian</i> 'learn' | <i>bvrian</i> 'teach' |
| <i>bvN-</i> | <i>tuk</i> 'put, keep' | <i>bvntuk</i> 'cargo, load' |
| <i>bvN-</i> | <i>véc</i> 'parcel up' | <i>bvrvéc</i> 'package' |

As is well known, Khmer has strong restrictions on word format: a word consists of either one syllable with the structure C(C)VC or C(C)VVC(C) (*major syllable*) or two syllables with a reduced first syllable (*minor syllable*) which displays further

12. "Exceptional employment of the participle of the mentioned verbs in the modern language is certainly always not due to a regional usage, but to logical considerations of the writers [...]. Especially Rückert has tried to correct the language [...]. Also Adelung considers in the case of *hören* 'hear' the participle to be the more regular, noble form."

phonotactic restrictions which are of no interest here (cf. Haiman 1998 for more details). Furthermore, a subset of minor syllables is of great relevance to morphology, since a word structure consisting of the minor syllables Ca -, Cr - or CvN - plus a major syllable is a common prefixed word. In spoken Khmer, phonological processes of strong reduction of minor syllables occur according to the cline in (35), in which the pronunciation in the first column is very careful and formal, and that in the last column colloquial and very informal.

- (35) Khmer
 ʀəbɔːŋ ʀəbɔːŋ labɔːŋ 'fence'
 ʀrɛtɛəh ʀrɛtɛəh ʀtɛtɛəh 'meet'
 kəndaːl kəndaːl kədaːl 'middle, centre'

As a consequence of these phonological reductions, the distinction between bisyllabic words with a minor syllable and monosyllabic words with two onset consonants is blurred, creating a potential source of new prefixes. As Bisang (2001: 198) argues:

ʀtɛtɛəh 'meet' cannot be distinguished phonetically from *ʀhɛtɛəh* 'house' with a CC onset set. The convergence of bisyllabic words [...] and monosyllabic words with CC onset creates a situation in which almost any consonant in the CC onset may be analysed as a prefix derived from a bisyllabic word with a prefix on *Cr*- or *CvN*- [...] In other words, we have a very productive device for the generation of new morphemes in Khmer.

Such techniques, however, did not develop because of the adoption of alternative devices from other languages. Bisang (2001) presents the case of the verb 'get' in particular, grammaticalized as a tense-aspect-modality marker in Khmer in parallel way with Thai and Vietnamese, even though the functions of the verbs for 'get', *ba:n* in Khmer, *đây* in Thai and *đượ* in Vietnamese, are not fully identical in all the three languages. Consider, in this connection, examples (36a–f).

- (36) Khmer
 a. *thŋay nih kŋnom thvɛː-kaː(r) ba:n*.
 day this I do-work can/be.able
 'Today, I can work.'
 b. *kŋnom ba:n tɕu piː(r) dɔːŋ haəy*.
 I PST go two time PFV
 'I already went twice.'
 Thai
 c. *wan nĩ phŏm tham-ŋaam dāy*.
 day this I do-work can
 'Today, I can work.'

- d. *phŏm dāy pay sɔːŋ kŋnáy lɛw*.
 I PST go two time PFV
 'I already went twice.'
 Vietnamese
 e. *tôi học tiếng Việt nam đượ*.
 I learn language Vietnam able
 'I am able to learn Vietnamese.'
 f. *tôi đượ đi Việt nam*.
 I be.allowed go Vietnam
 'I am allowed to go to Vietnam.'

A synchronic mismatch of a reverse type is provided by Vietnamese, in which the exploitation of the morphological parameter of right-headedness occurs because of contact with Chinese. As shown by (37), the head parameter behaves differently for Vietnamese and Chinese.

- (37) a. Vietnamese b. Chinese
xe mới [Head–Modifier] *xin che* [Modifier–Head]
 car new new car
 'a new car' 'a new car'

As a result of contact with Chinese, Vietnamese borrowed right-heading, which is used in word-formation processes which employ morphemes from Chinese, as illustrated in (38) below by the Sino-Vietnamese class noun *gia* (from Chinese *jiā* 'house') in contrast with the Vietnamese class noun *nhà*.

- (38) a. Sino-Vietnamese b. Vietnamese
nhà học gia *nhà phát minh*
 science CLF CLF invent
 'scientist' 'inventor'

Interestingly, this richness of options has been exploited for morphological purposes in Vietnamese. Thus, in some cases, such as *chủ nghĩa* '-ism' (from Chinese *zhǔyì* '-ism'), the head position is used to distinguish between the nominal and the modifying functions of the abstract concept expressed by this word formative, as illustrated by the comparison of (39a) and (39b).

- (39) Vietnamese
 a. *chủ nghĩa xã hội* b. *xã hội chủ nghĩa*
 ism society ism society ism
 'socialism' 'socialistic'

We have analysed, therefore, two mirror-image cases, in which, on the one hand, the possible grammaticalization of a functionally more consistent morpho-

logical system does not develop further because of alternatives borrowed from other languages, and, on the other, a morphological principle develops as a consequence of external influence. In both cases, the distorting effect induced by grammaticalization results into a mismatch between theoretically conceivable forms and concrete outcomes.

4. Conclusion

This paper has examined the distorting impact of grammaticalization on grammar by focusing on synchronic mismatches resulting from the expansion of a grammaticalization process. These mismatches are caused by an unchanged residue of grammaticalization, in turn the result of inertial resistance, a superordinate restriction which prevents grammaticalization from extending to a particular domain, or language contact.

However, the typology of mismatches reviewed in this paper is surely inadequate and needs to be enlarged. We have focussed mainly on the role played by forces which restrain the grammaticalization process, but mismatches may also arise from a grammaticalization process which creates new non-canonical constructions, as has been suggested by Creissels (2006) for Basque and Russian. Nonetheless, my hope would be that the issues raised in this study might serve as a stimulus for further independent research undertaken from a purely synchronic perspective.

A first question which needs to be addressed concerns the way mismatches are constrained and the theoretical mechanisms which can best account for these constraints. A second, far bolder question asks whether a grammaticalization perspective can (always?) provide answers for mismatches. I hope that this paper has shown how fruitful grammaticalization can be in providing interesting insights regarding the first question. As for the second, I am not sure that there is a positive answer. For instance, grammaticalization may help explain content mismatches involving verbs like *seem* in sentences such as *John seems to like it* (cf. Francis and Michaelis 2003: 7), where diachronic development can be traced quite adequately along the path of auxiliaryization. More difficult is the case of the prepositions *under* and *at*, which differ with respect to their employment as sentence subjects, as the contrast between *Under the sofa is dirty* vs. *At the park is dirty* illustrates (cf. Francis and Michaelis 2003: 13). The latter case seems to be more closely related to other principles not clearly amenable to grammaticalization. However, even if the second question should be answered in the negative, I am fully convinced that grammaticalization will shed light on many of the mismatch effects observed in synchronic grammars.

Abbreviations

| | | | |
|------|---------------|------|--------------|
| 1 | first person | IPFV | imperfective |
| 2 | second person | M | masculine |
| 3 | third person | N | neuter |
| ABL | ablative | NOM | nominative |
| ABS | absolutive | OBJ | object |
| ACC | accusative | PFV | perfective |
| ADJ | adjective | PL | plural |
| AUX | auxiliary | POSS | possessive |
| CLF | classifier | PRS | present |
| DAT | dative | PST | past |
| DEF | definite | PTCP | participle |
| ERG | ergative | SBJ | subject |
| F | feminine | SBJV | subjunctive |
| GEN | genitive | SG | singular |
| INF | infinitive | TR | transitive |
| INTR | intransitive | V | verb |

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